Dec. 27, 1966 A. SCHMERMUND 3,293,825

PACKING MACHINES

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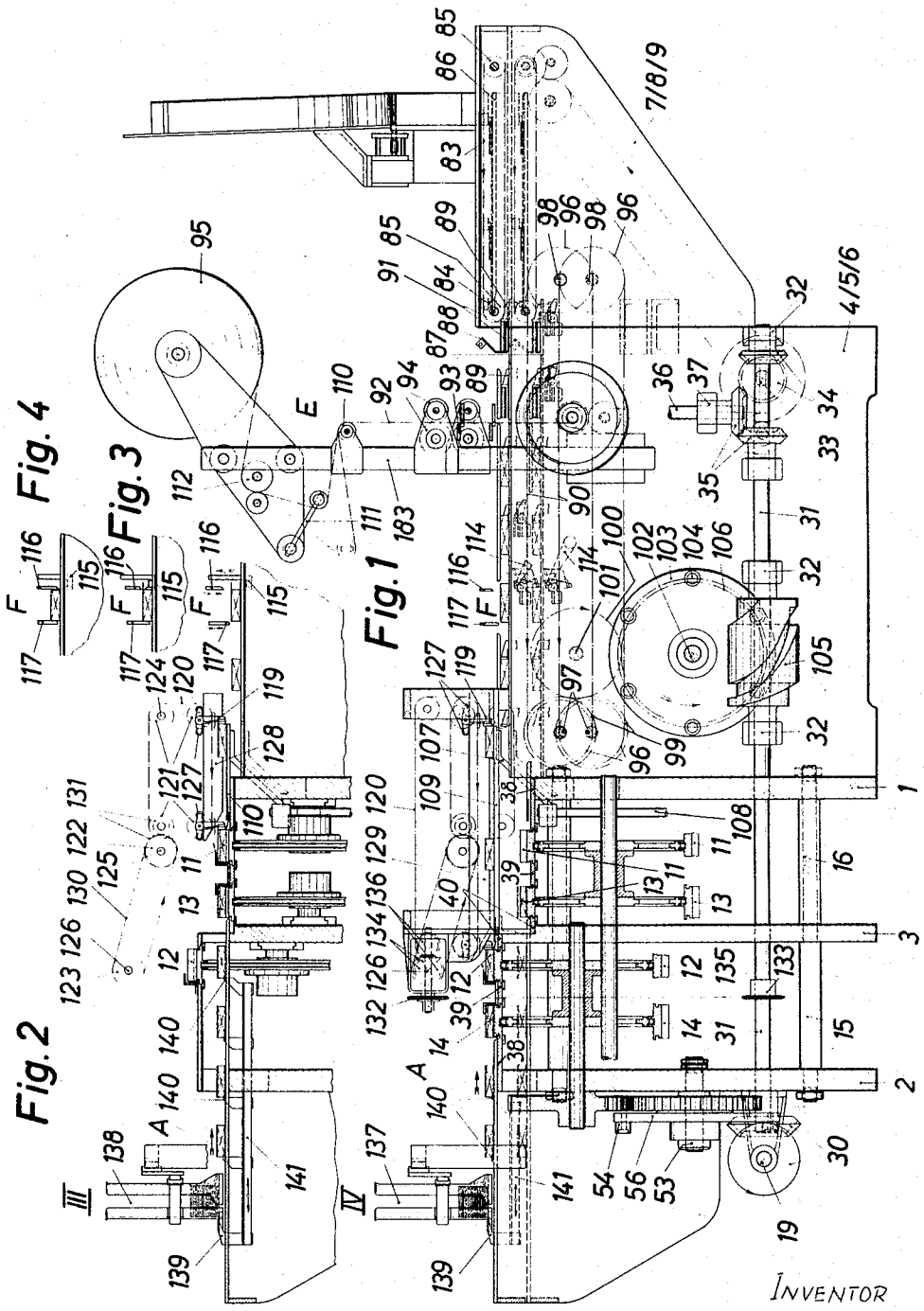

Fig. 1

Fig. 2

Fig. 3

Fig. 4

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Fig. 6

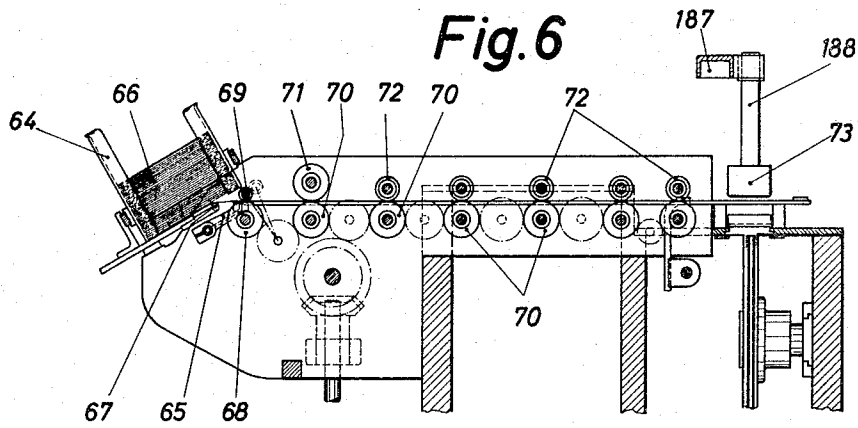

Fig. 5

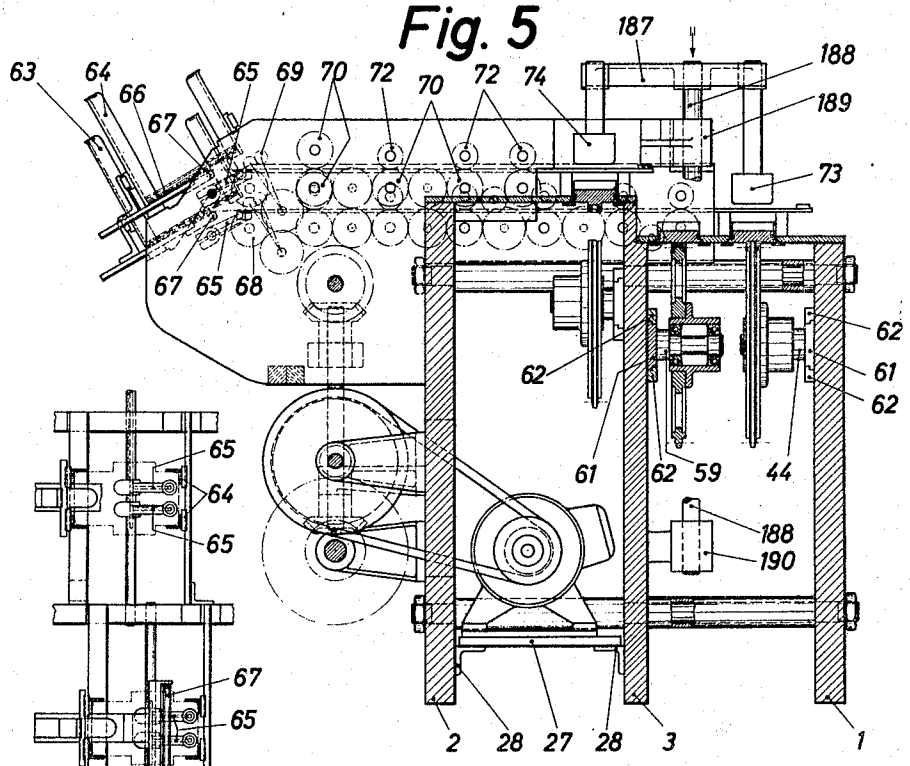

Fig. 7

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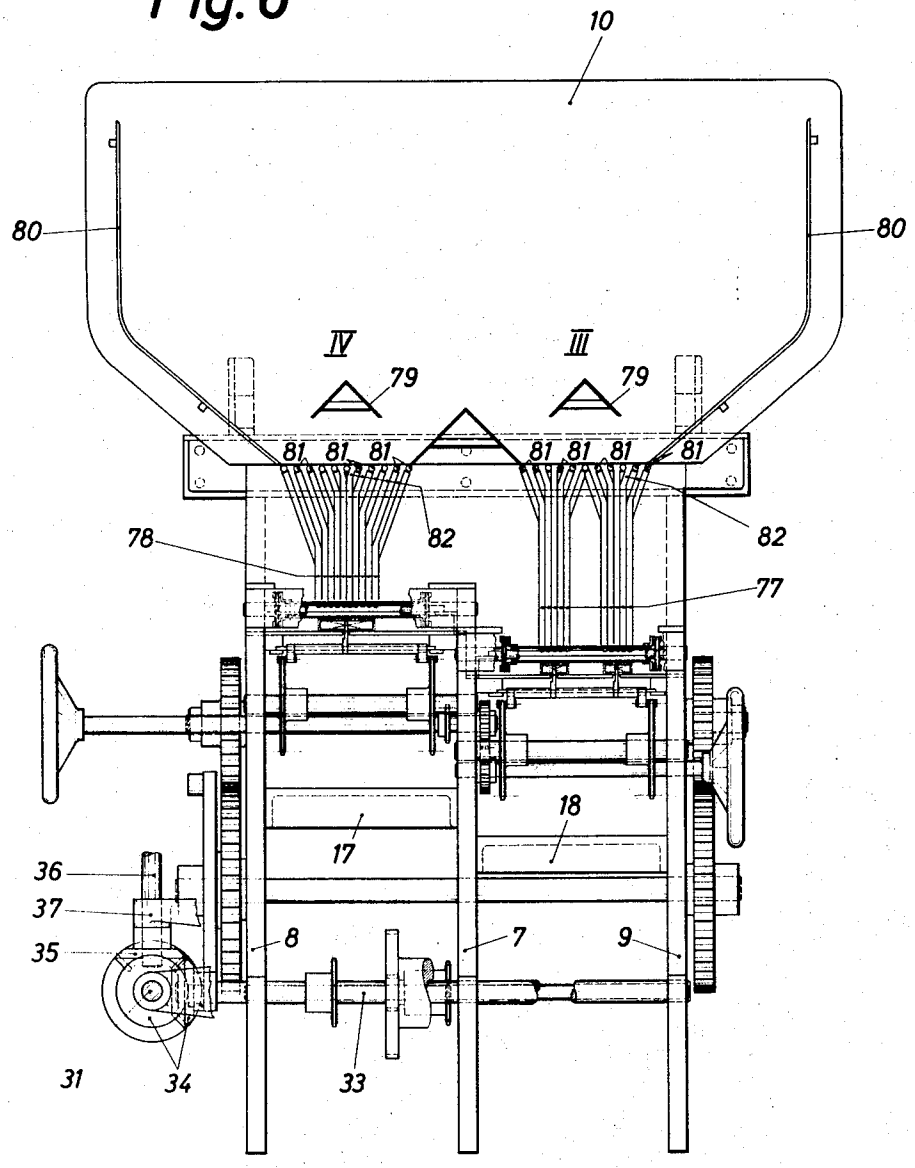
Fig. 8



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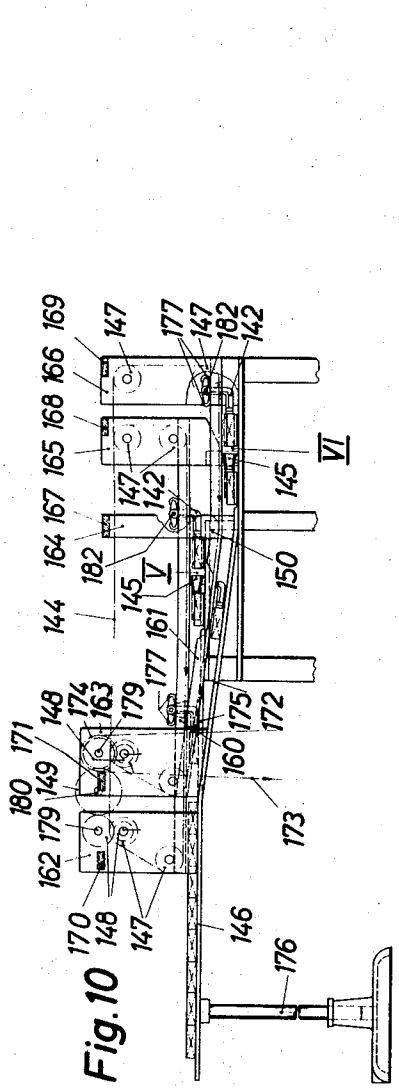

Fig. 10

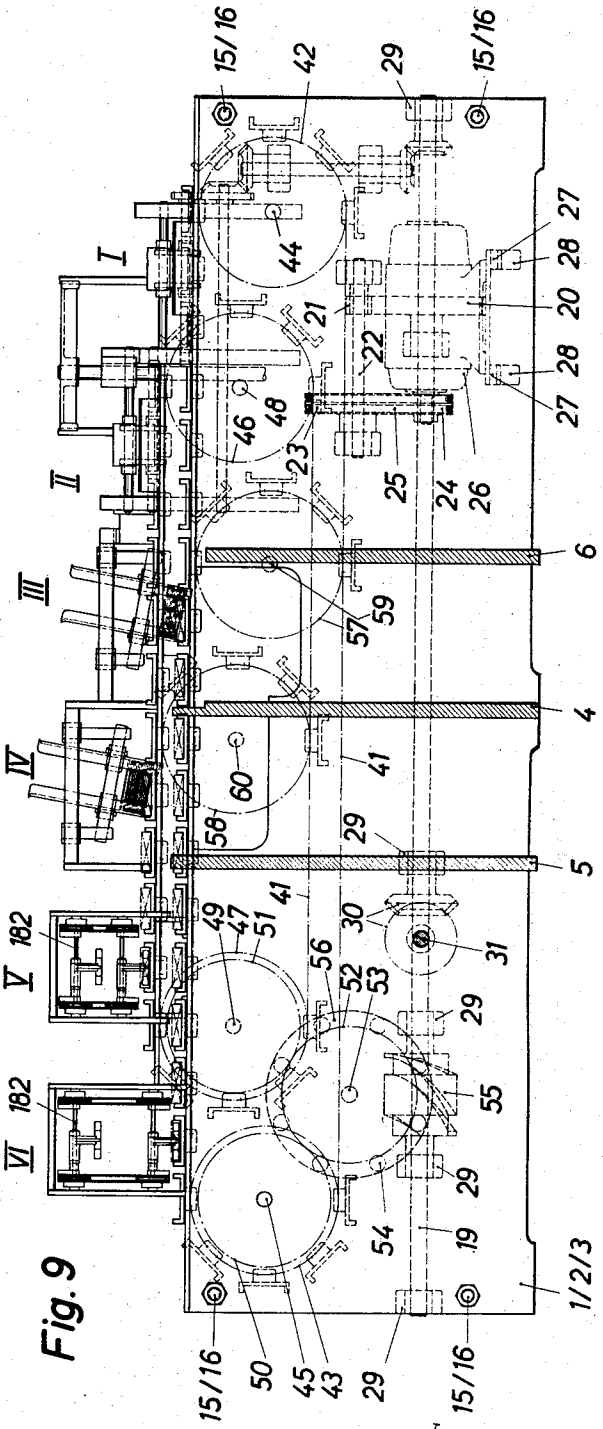

Fig. 9

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Fig.11A

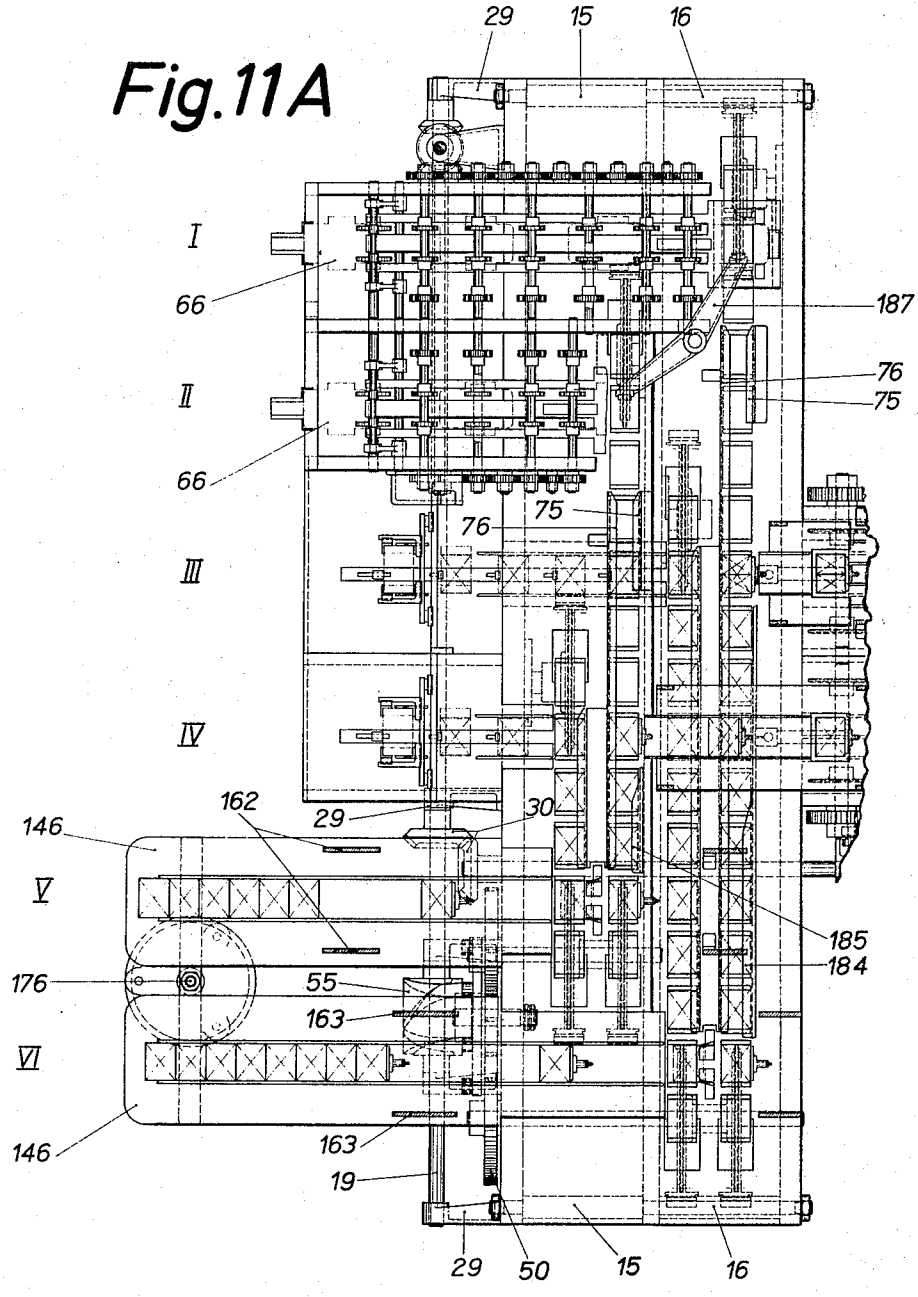

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Fig. 11B

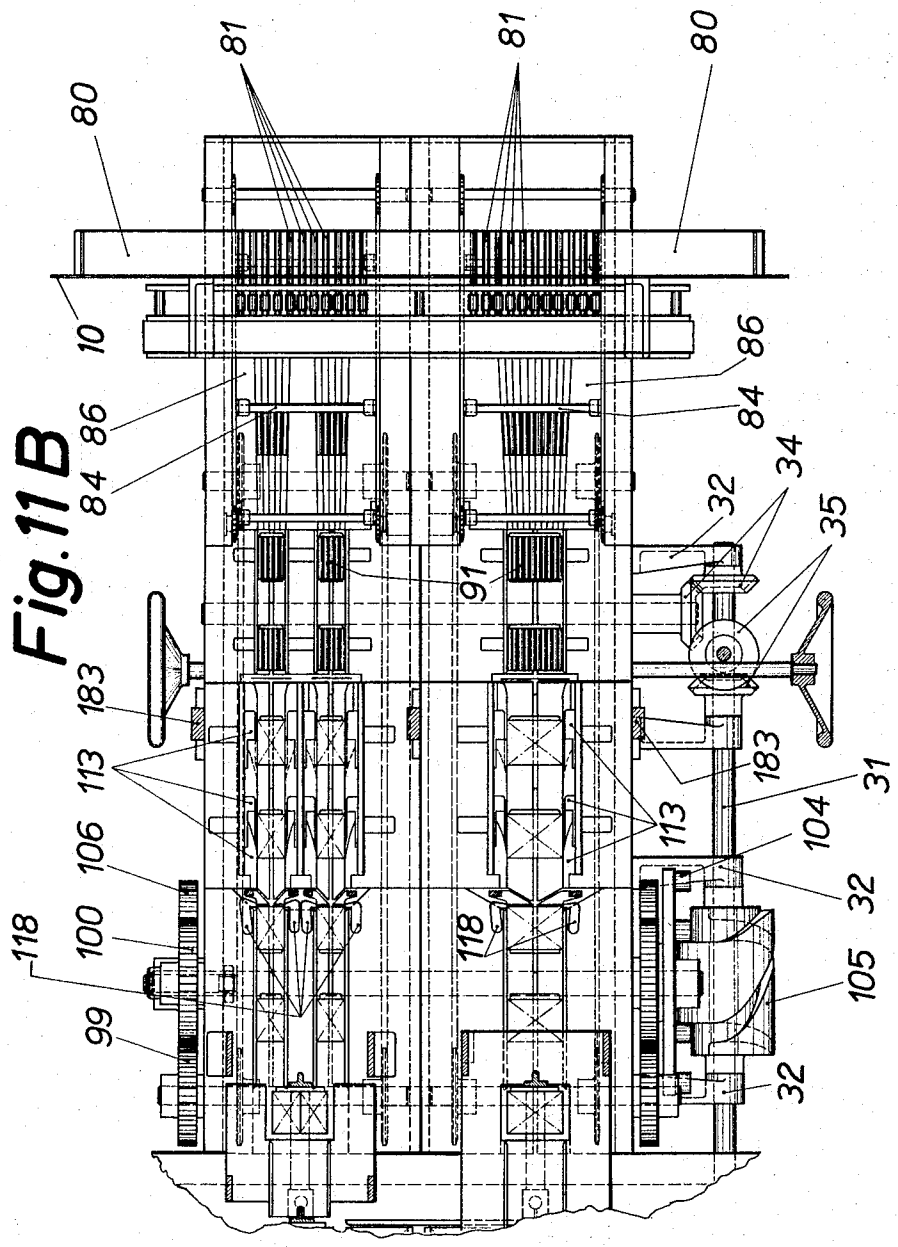

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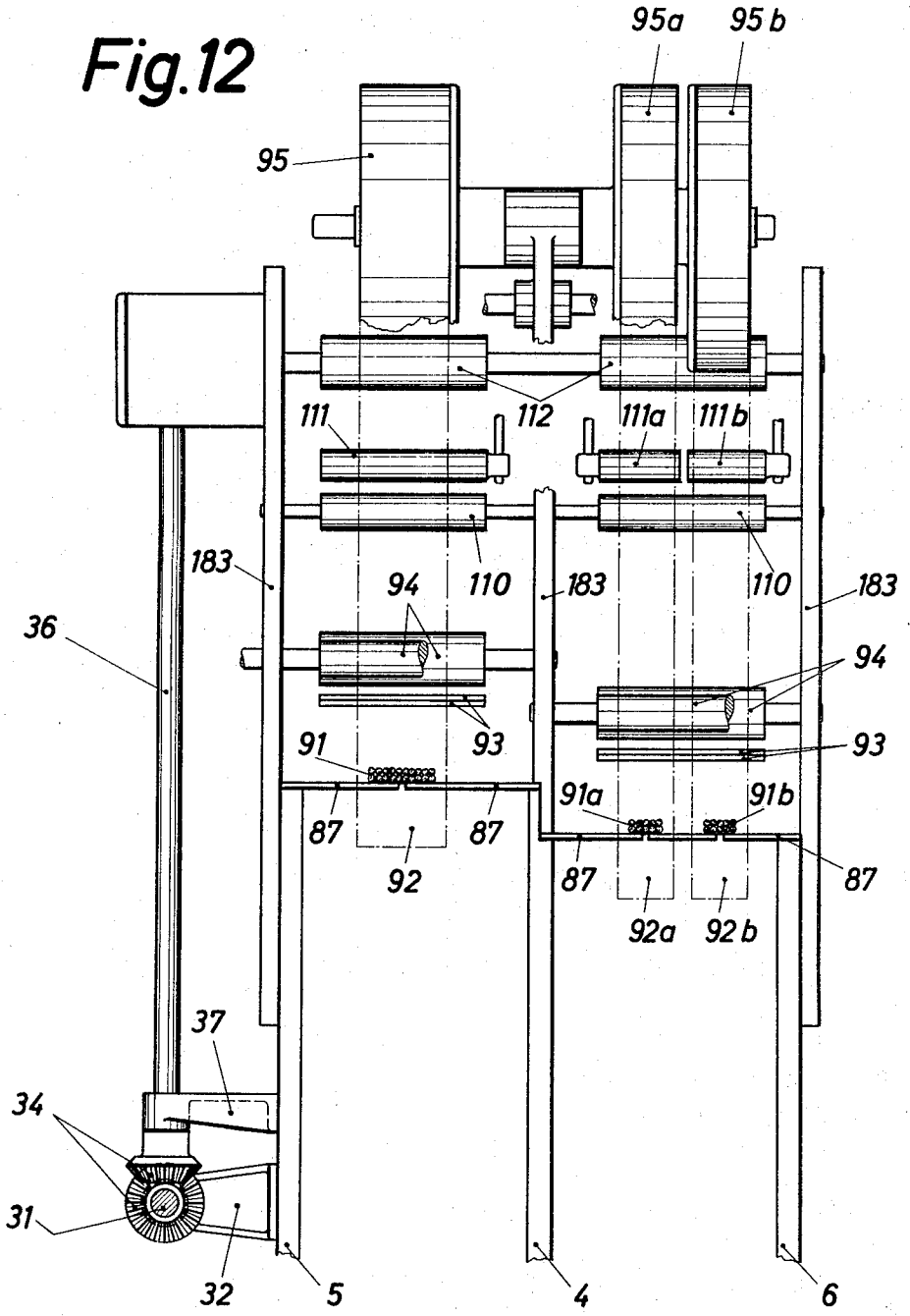
Fig.12



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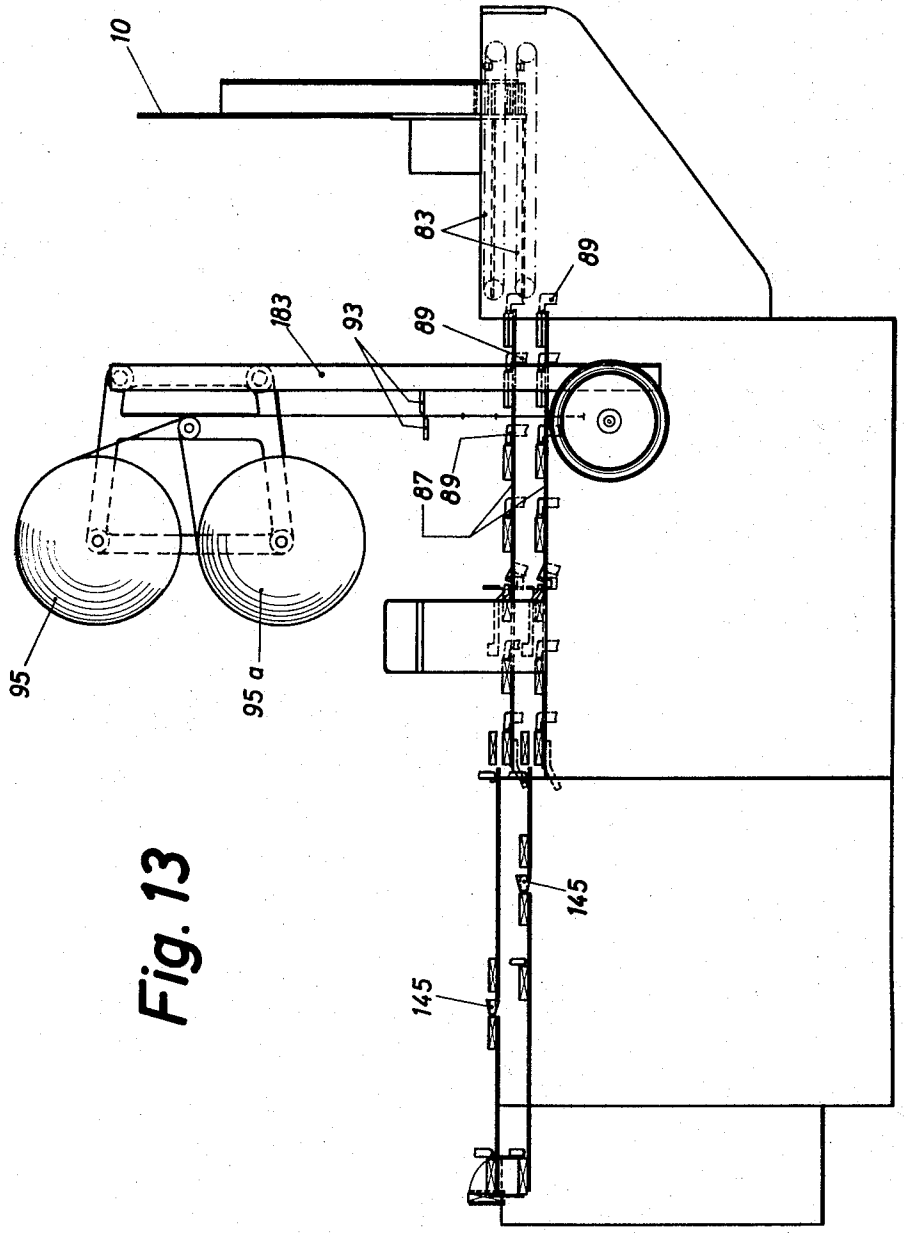

Fig. 13

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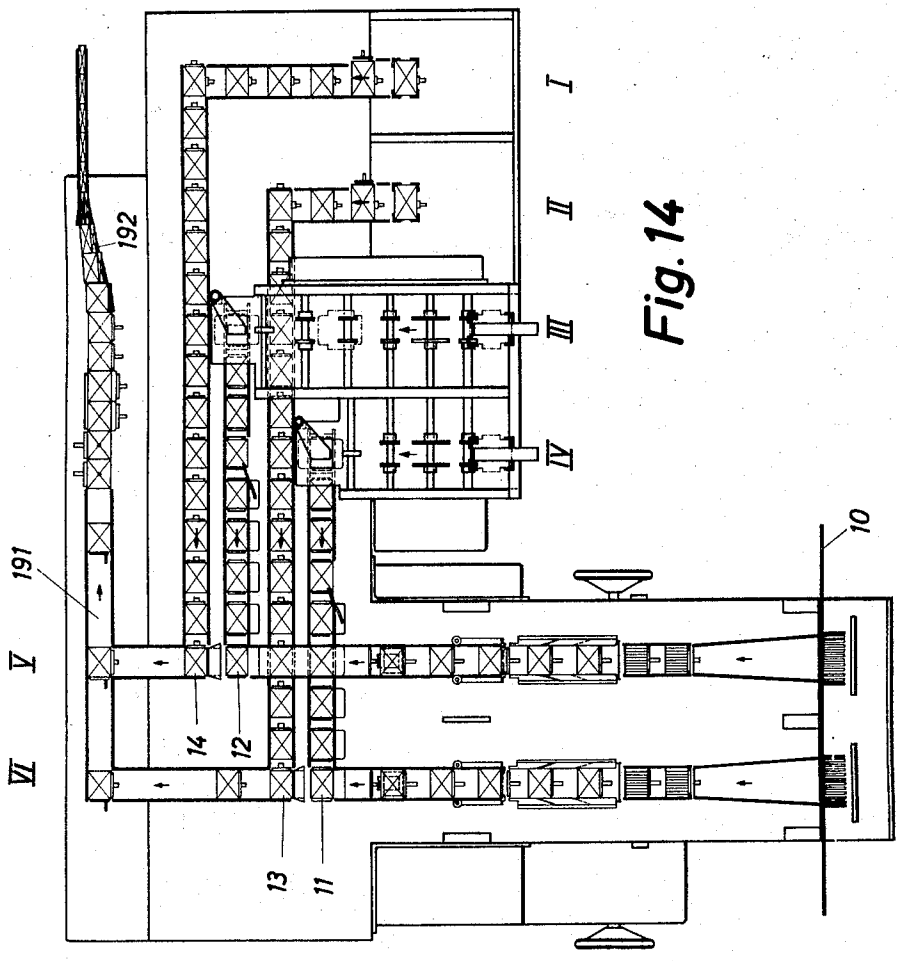

Fig. 14

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Fig. 15

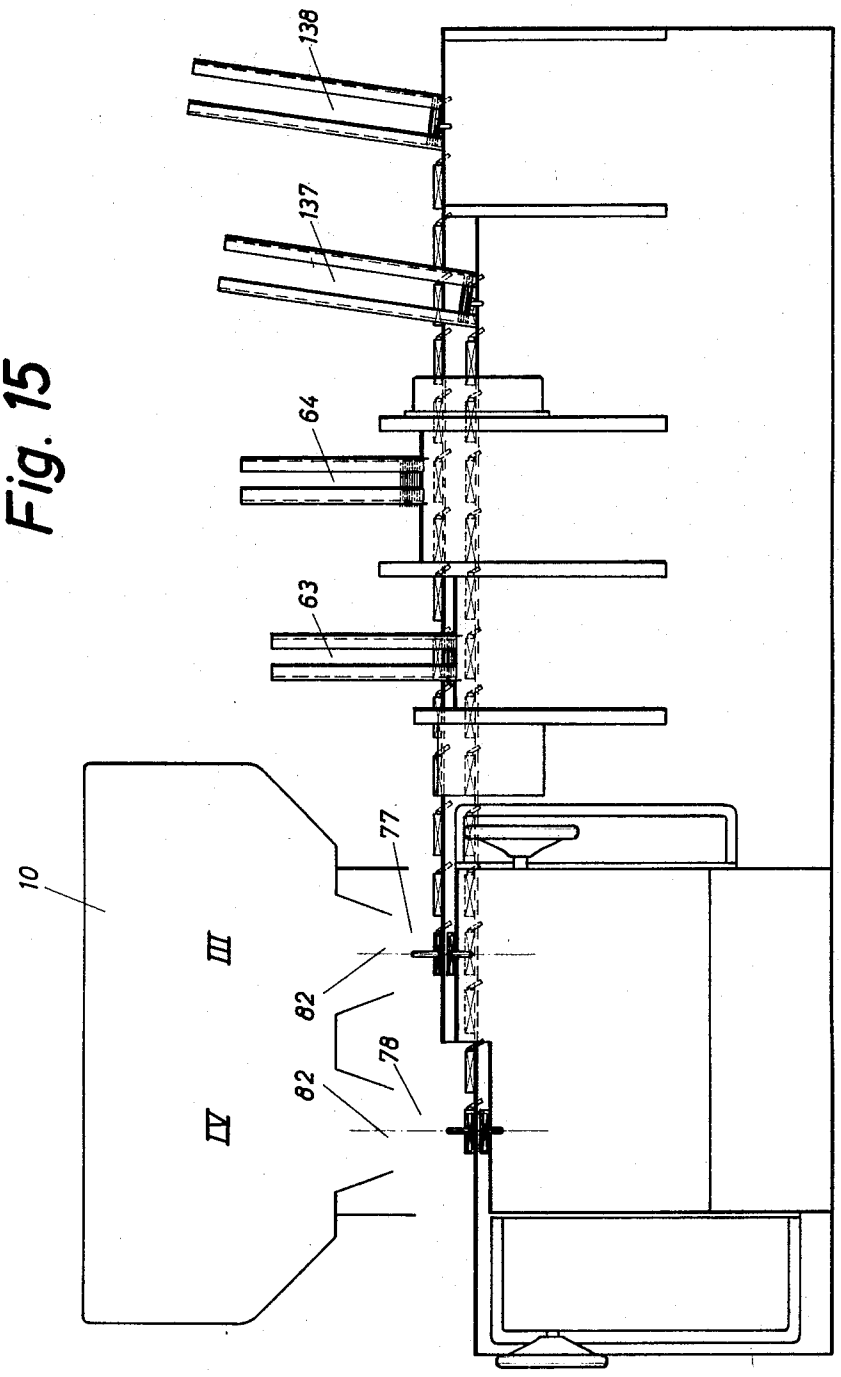

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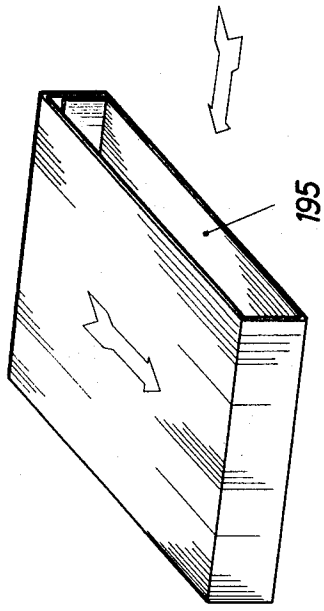
Fig. 17



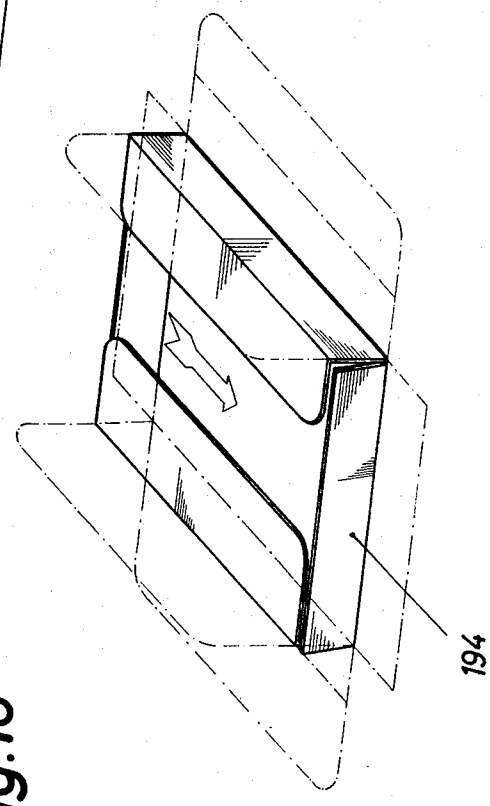


Fig. 16

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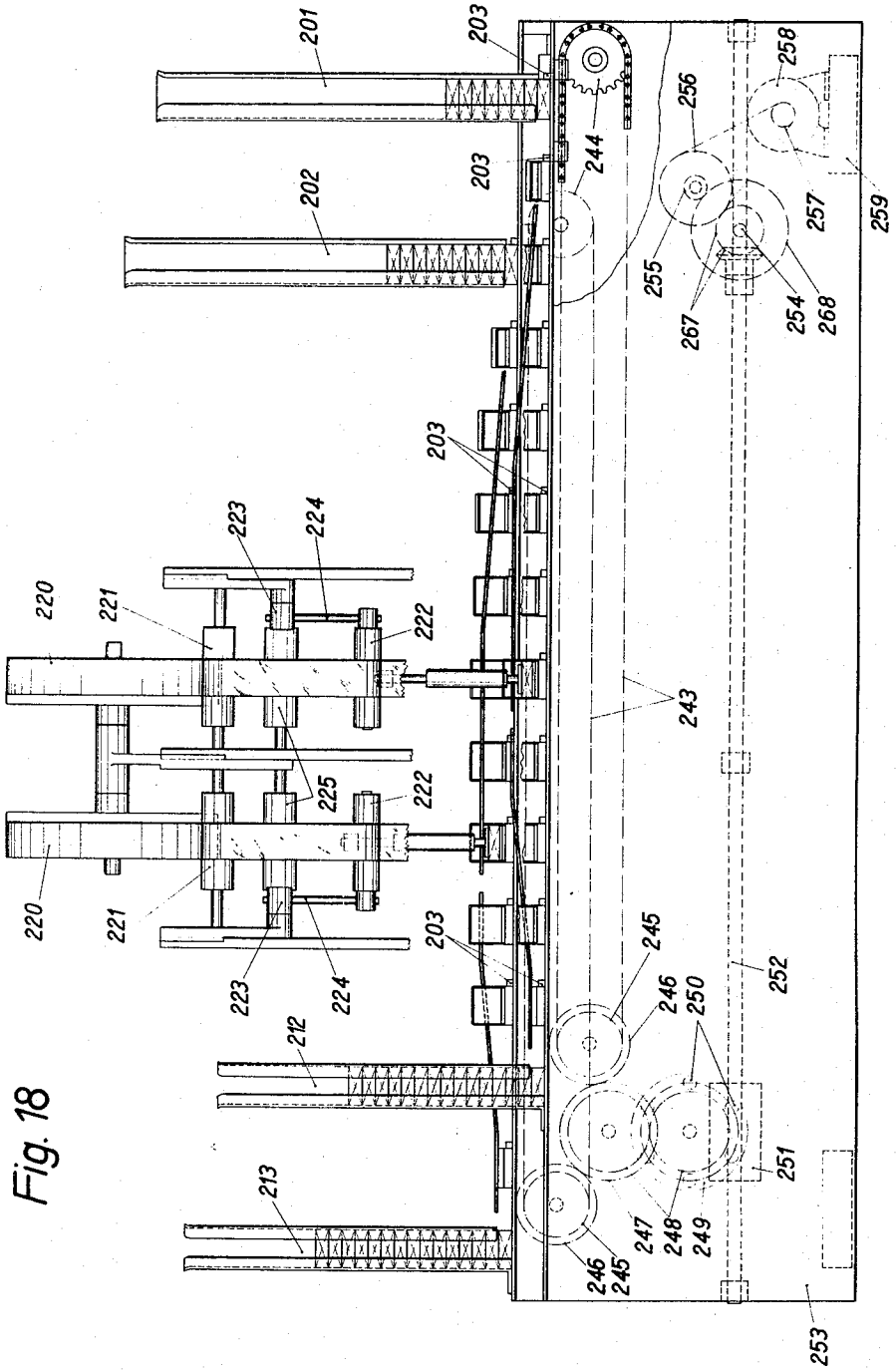

Fig. 18

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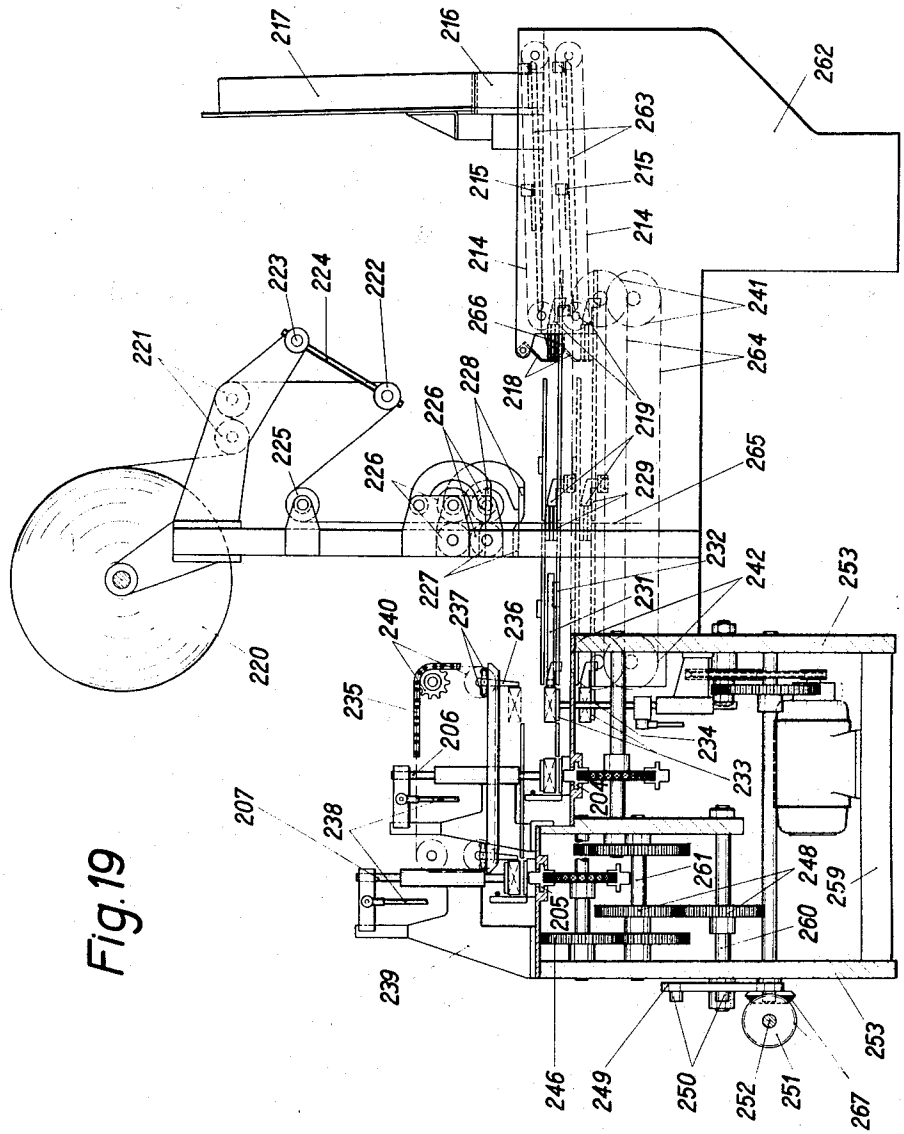

Fig. 19

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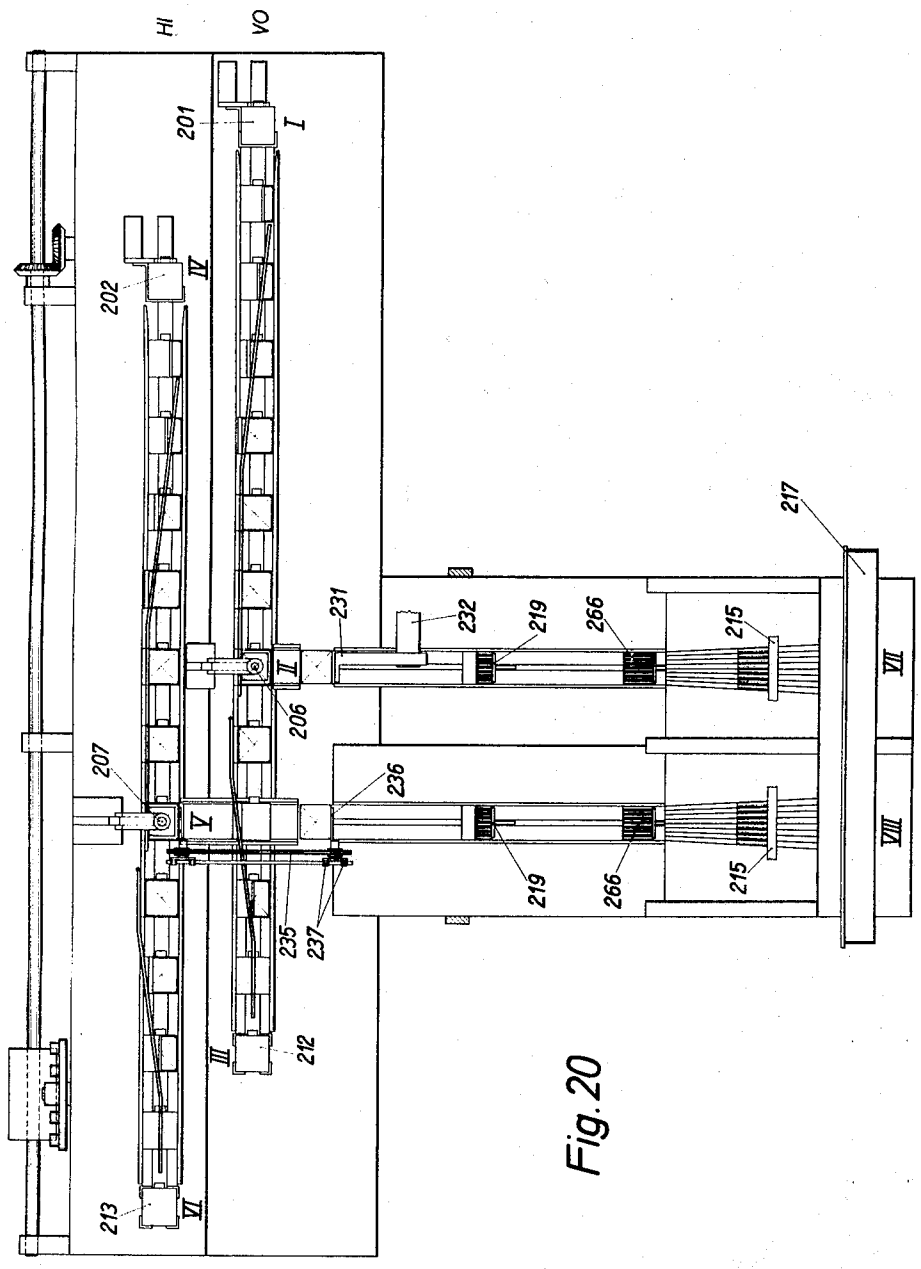

Fig. 20

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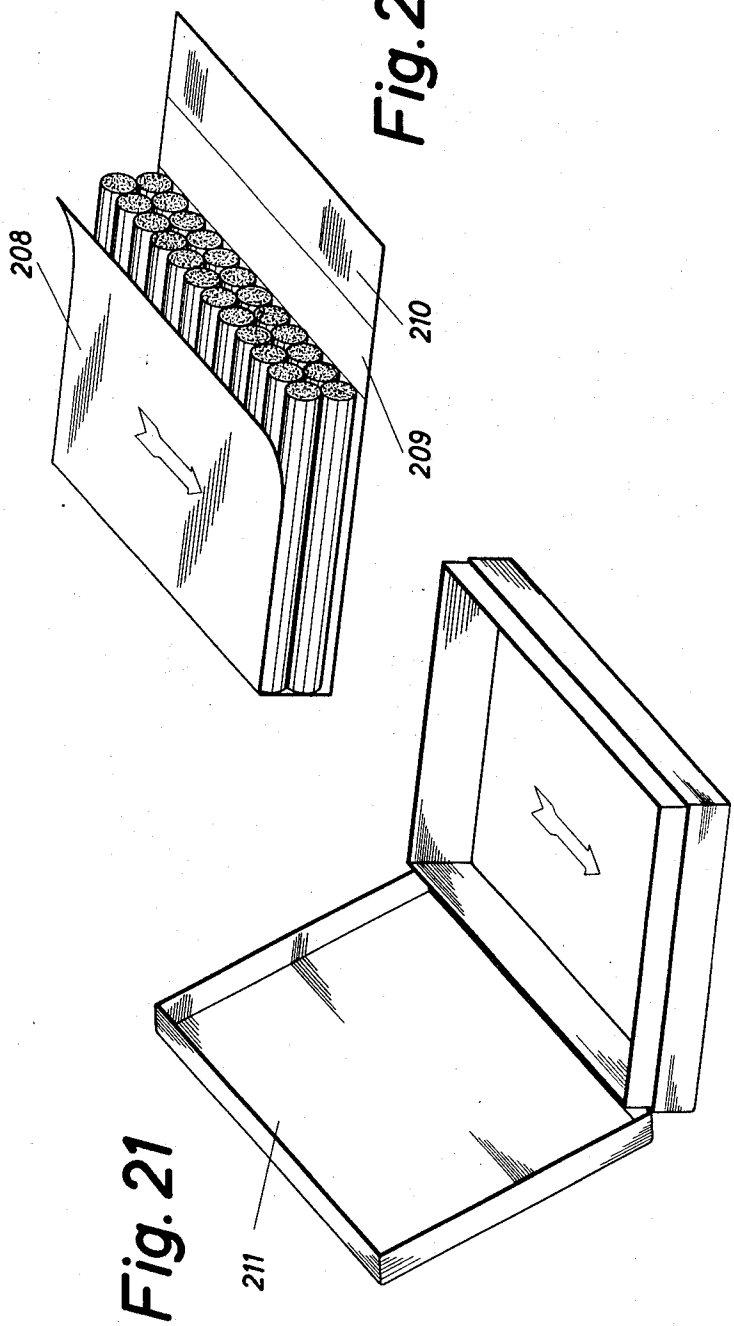

Fig. 22

Fig. 21

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United States Patent Office 3,293,825
Patented Dec. 27, 1966

3,293,825

PACKING MACHINES

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Filed June 16, 1964, Ser. No. 375,586
Claims priority, application Great Britain, Sept. 23, 1963, 37,303/63
9 Claims. (Cl. 53—186)

The invention relates to packing machines and more specifically to machines for packing articles such as groups of cigarettes disposed in block-like form.

Single path packing machines for packing cigarettes in packets having a tray-like portion slidable within a shell are known. Such machines operate as so-called transverse packers in which cardboard blanks for forming the packets are transported in interrupted working steps from station to station transversely to the longitudinal axis of the cigarettes to be later contained therein. Chain conveyors having individual cells and which are moved in a step-wise manner are preferably used for transporting the cardboard blanks.

A number of cigarettes are grouped to form a so called cigarette block and enveloped in aluminium foil. This cigarette block is introduced to the transverse feed path of the packing material perpendicularly thereto at a predetermined region.

If it should be desired to construct this known machine in a double path manner by providing two feed paths side by side, then the two paths must be supplied with the cigarette blocks from opposite sides. This would make two cigarette supply magazines necessary and consequently require two operators, one posted at each side of the machine. Moreover, different cardboard blanks would have to be used for the right and left hand sides, since it would be necessary for the second path to be a mirror image of the first path. As a result of these disadvantages, such a two pathed machine would be commercially unpractical, since it has disadvantages without having any particular advantages.

The invention consists in a packing machine for packing articles, such as groups of cigarettes disposed in block-like form, in packets, comprising means defining two feed paths for the articles, one feed path being disposed at a higher level than the other, each article-feed path being intersected by at least one transverse feed path, means being provided for feeding the articles along the article-feed paths, means being provided for feeding packets or portions of packets along the transverse feed paths, the transverse feed path or paths which intersect one or the other of the article-feed paths passing over the other or the one article-feed path without intersection therewith.

When the packets are of a kind having a tray-like slide part which is to be slidably disposed in a shell part, preferably two transverse feed paths are provided for each article-feed path, one for feeding the tray-like slide parts and the other for feeding the shell parts.

The arrangement of the article-feed paths and the transverse feed paths may be such that articles fed along the article-feed paths are engaged by the packets or packet portions fed along the transverse feed paths and are then further transported along the article-feed paths for removal from the machine.

In this case, the article feed paths may be intersected by a common transverse removal path into which the packed articles are laterally displaced from the article-feed paths, the transverse removal path having an inclined

part adapted to the difference in height of the article-feed paths.

Alternatively, the arrangement of the article-feed paths and the transverse feed paths may be such that articles fed along the article-feed paths are engaged by the packets or packet portions fed along the transverse feed paths and are then further transported along the transverse feed paths for removal from the machine.

In order to make the invention clearly understood, reference will now be made to the accompanying drawings which are given by way of example and in which:

FIG. 1 is a cross-sectional view through a cigarette packing machine having two feed paths for cigarettes, the paths being disposed at different levels, and two sets of transverse feed paths correspondingly disposed at different levels;

FIG. 2 is a fragmentary cross-sectional view similar to FIG. 1 but with various parts omitted, and at a different point along the transverse feed paths;

FIG. 3 diagrammatically illustrates a folding station for folding the ends of a metal foil in which a group of cigarettes are wrapped prior to being inserted in a packet;

FIG. 4 shows the elements forming the folding station, in a different operative position;

FIG. 5 is a cross-sectional view similar to FIG. 1 but taken at yet another point along the transverse feed paths;

FIG. 6 is a view similar to FIG. 5 but showing certain machine elements in different operative positions;

FIG. 7 is a plan view of the left hand part of FIG. 5;

FIG. 8 is an end view, partly in section, taken from the right hand side of FIG. 1;

FIG. 9 is an end view, partly in section, taken from the left hand side of FIG. 1;

FIG. 10 is a fragmentary elevation view of an arrangement for the discharge of finished packets from the machine;

FIG. 11 is a plan view of the entire machine;

FIG. 12 is an elevation view of an arrangement for supplying metal foil for wrapping cigarettes prior to their introduction into packets;

FIG. 13 is a diagrammatic side view of a modified form of the machine;

FIG. 14 is a plan view of the entire modified machine;

FIG. 15 is an end view of the modified machine, as viewed from the bottom of FIG. 14;

FIG. 16 is a perspective view of a slide part of a cigarette packet;

FIG. 17 is a perspective view of a shell part of a cigarette packet;

FIG. 18 is a front view of a packing machine for packing cigarettes in hinged cap boxes;

FIG. 19 is a side view of the machine of FIG. 18;

FIG. 20 is a plan view of the machine of FIG. 18;

FIG. 21 is a perspective view of a hinged cap box such as is used with the machine of FIGS. 18, 19 and 20; and

FIG. 22 is a perspective view of a cigarette block for insertion in the box of FIG. 21.

The packing machine has two straight-ahead feed paths for cigarettes, disposed at different levels, these being intersected by transverse feed paths for tray-like slide portions of packets and for shell portions after cigarettes have been supplied to the slide portions.

Referring now to FIGS. 1 and 9, the transverse feed paths are provided between frame walls 1, 2 and 3 and the straight-ahead feed paths are provided between frame

walls 4, 5 and 6 and extension walls 7, 8 and 9. The transverse feed paths are formed by conveyor chains having conveyor cells secured thereto, one path being formed by cells 11 and 13, and the other path at a higher level than the said one path, being formed by cells 12 and 14.

The housing walls 1, 2 and 3 are spaced apart and stiffened by means of traverses 15 and 16, 15 being a rod and 16 being a tube which is slid over the rod 15. The frame walls 4, 5 and 6 and the extension walls 7, 8 and 9 are spaced apart and stiffened by traverses 17 and 18. The frame walls 4, 5 and 6 are screwed to the housing wall 1, and the extension walls 7, 8 and 9 are screwed to the frame walls 4, 5 and 6 respectively.

A main control shaft 19 for the transverse part of the machine is driven through spur wheels 20 and 21 from a lay shaft 22, the lay shaft 22 being driven by a V-belt pulley 23 from a pulley 24 by means of a V-belt 25, the pulley 24 being driven by a motor 26. The motor 26 is mounted on rails 27, which are secured to the frame walls 2 and 3 by means of angle members 28. The main control shaft 19 is mounted in bearings 29 fixed on the frame wall 2.

A main control shaft 31 for the straight-ahead part of the machine is driven by a pair of bevel wheels 30 from the main control shaft 19. The shaft 31 is partly carried in the frame walls 1, 2 and 3, and partly in bearings 32 fixed on the frame wall 5.

A horizontal control shaft 33 (see also FIG. 8) is driven by a pair of bevel wheels 34, which are mounted in the frame walls 4, 5 and 6, from the control shaft 31.

A further, vertical, control shaft 36 mounted in bearings 37 which are fixed to the frame wall 5 is driven by a pair of bevel wheels 35.

The conveyor paths 11 and 12 are provided for the slide parts of the cigarette packets, the path 12 lying at a higher level than path 11. The cells 11 and 12 are guided in path plate parts 38, 39 and 40, and are connected together by endless roller chains 41, which are entrained over chain wheels 42 and 43 for the chain 41 carrying the cells 11, and chain wheels 46 and 47 for the chain 41 carrying the cells 12. The chain wheel 42 is mounted on a shaft 44, chain wheel 43 on a shaft 45, chain wheel 46 on a shaft 48, and chain wheel 47 on a shaft 49. The shaft 45 is mounted in the frame walls 1, 2 and 3, and carries a spur wheel 50 at its end. The shaft 49 is mounted in the frame walls 2 and 3 and carries a spur wheel 51. The spur wheels 50 and 51 are commonly driven by a spur wheel 52 which is mounted on a shaft 53. A roller plate 56 having follower rollers 54 is mounted on the shaft 53 and is fixedly connected with the spur wheel 52. The roller plate 56 is periodically indexed by a switching cam 55 provided on the control shaft 19, so that the cell chains are driven forward by one cell pitch for each revolution of the control shaft 19.

The conveyor paths 13 and 14 are provided for the shell parts of the cigarette packets, the path 14 being at a higher level than path 13, corresponding to the height of the path 12. The chains 41 carrying the cells 13 and 14 are entrained over chain wheels 43 and 47 of equal size provided on shafts 45 and 49, and are driven thereby, and over chain wheels 58 and 57, which are mounted on shafts 59 and 60. The drive of these chains is effected likewise by the control cam 55. The shafts 44, 48, 59 and 60 are fixed on slides 61 (see also FIG. 5), which are slidably mounted on rails 62 and with the aid of which the chains 41 can be tensioned.

The feeding of the cells 11 and 12 with carton blanks for the slide of the cigarette packet is effected at the cell chain stations I and II. By means of a suction device 65 (see also FIGS. 5 and 6), in each case the lowermost flat carton blank 66 is drawn from magazines 63 and 64 and is bent over a roller 67 into the horizontal position. The leading end of the carton blank 66 thus comes to lie on a stationary roller 68, while a movable upper roller 69 is swung downwardly. By means of the two rollers 68 and 69, the carton blanks are then drawn out of the respective magazines 63 and 64, and fed into a roller path, which is provided with pairs of rollers 70, 71 and 70, 72 and are thus fed onto the cells 11 and 12. Plungers 73 and 74 press the carton blanks into the cells in such manner that their previously scored or previously perforated side parts project upwardly. The plungers 73 and 74 are fixed by means of a traverse 187 on a slide rod 188 guided in bearings 189 and 190. The slide rod 188 is moved upwards and downwards by drive means (not shown). The carton blanks are now transported by the cells 11 and 12. In the course of the transport, in each case front tips of the carton slide members are urged downwardly by stationary blades 75 (see FIG. 11), whereas the oppositely lying upper part of the tips are urged downwardly by blades 76 and are held in this position during the further transport. The cells 11 and 12 are thus loaded with prepared carton slide members.

Cigarette blocks, that is to say groups of cigarettes which have been wrapped in metal foil, are prepared in the straight-ahead part of the machine and are now introduced into the prepared slide carton members in the stations III and IV.

The straight-ahead part comprises the two stations III and IV, station IV lying higher than III. This part of the machine is fed by a common cigarette supply hopper (see FIG. 8) which comprises a wall 10, side walls 80, distributing parts 79, distributor shafts 81 which rotate to and fro, fan shaped channels 82 and supply chutes 77 and 78. The arrangement of the distributor shafts is disclosed in my patent specification No. 3,127,971.

The part of the hopper shown in line with station III shows the production of two individual blocks parallel to each other, each of 10 cigarettes, and the part shown in line with station IV shows the production of a single block of 20 cigarettes.

Pushing dogs formed by transverse rails 84 (see FIG. 1) fixed on chains 83 which are entrained over chain wheels 85 and 96 in each case supply the lowermost row of cigarettes from the supply chutes 77 and 78 over feed plates 86, until they fall in a layer onto a further somewhat lower lying plate 87 at the end of the plate 86. After in each case two layers have been provided one on the other, pushing dogs 89 which are pivotally linked on chains 90, intermittently advance the cigarette blocks 91 thus formed.

A light easily displaced abutment 88 brings each cigarette block 91 into engagement against the pushing dog so that individual cigarettes do not project.

The claims 90 are driven by chain wheels 96 and are entrained over the same. The front chain wheels 96 are arranged in pairs on drive shafts 97, whereas the rear chain wheels 96 are provided on idle shafts 98.

The front shafts 97 carry spur wheels at their ends which mesh with a spur wheel 100 on a shaft 101, this meshing with a spur wheel 106 on shaft 102. An indexing disc 103 with follower rollers 104 is provided on the shaft 102. This indexing disc 103 is intermittently driven by a control cam 105 provided on the control shaft 31, so that the pushing dogs 89 of the chains 90 are driven forward in each case by one step for each revolution of the control shaft 31. In the end position of advance by the pushing dogs 89, the cigarette blocks pass onto an elevating plate 107 which is fixed to a push rod 108 and are there lifted to the level of plates 109 and 110.

Previously, the cigarette blocks 91 have been pushed by means of the pushing dogs 89 at the station E into engagement with a piece of metal foil, for example aluminimum, which is taken from a supply roll 95, this being formed in a U-shaped manner around the cigarette block, in a manner known per se.

The feed arrangement for the metal foil is known per se and consists of an advancing roller pair 94, cutting

blades **93**, a deviating roller **110**, a compensating pendulum **111** and an advancing roller pair **112**.

Whereas the advancing roller pair **112** continuously operates, the compensating pendulum **111** takes up the drawn off length of foil, the intermittently operating advancing rollers **94** and the cutting blades **93** are arranged at different heights, corresponding to the difference in height of the feed plates **87**.

On the way from station E to station F, the lateral folds on the metal foil wrapping are effected by means of stationary folding elements or blades **113** (see FIG. 11), so that at station F wrapped blocks which are closed on five sides but which are rearwardly open are present. The pushing dogs **89** are swung rearwardly at station F by means of levers **114**, whereupon lateral folding devices **118**, lower folding devices **115**, and upper folding devices **116** complete the end folds (see FIGS. 2, 3 and 4), while an abutment **117** holds the block in position against the folding pressure. Thereafter, the pushing dogs **89** at station F are again swung upwardly by means of the levers **114** and the blocks **91** are transported further thereby.

After elevation onto platforms **109** and **110**, by the elevating plates **107**, the blocks **91** are pushed by means of transport hooks **119** at stations III and IV into the prepared slide carton parts which lie in the cells **11** and **12**.

The transport hooks **119** have rollers **127** at lateral arms thereof, which run over guide rails **128** and **129** and hold them in position. The transport hooks **119** are moreover provided on roller chains **120** which are guided over and driven by, in each case, four chain wheels **121**. These transport chains **120** are driven without interruption, that is to say they run continuously. The drive of the lower chain is effected by a pair of spur wheels **131** and by a further roller chain **130** and chain wheels **122** and **123**. Chain wheel **123** is provided on a shaft **126** which is driven by a pair of bevel wheels **134** from a chain wheel **132** through a chain **135** and a chain wheel **133** provided on the control shaft **31** (FIG. 1). The upper chain **120** is driven through a pair of spur wheels **136** likewise from the shaft **126**.

Opposite to the region of the cigarette block production in stations III and IV, devices for the removal and feeding of shell or sleeve carton parts with respect to the cells **13** and **14** are provided. By means of pushing dogs **139** in each case the lowermost flatly lying shell, which is already glued and formed into a collapsed box shape, is removed from magazines **137** and **138** (see FIGS. 1 and 2) and intermittently fed in the direction of the arrow A. Further pushing dogs **140** move the collapsed shells in each case by one station forwardly. The collapsed shells, after leaving the magazine, are erected by an arrangement disclosed in my German patent specification No. 1,097,-889, and are introduced into the cells **13** and **14**. The pushing dogs **139** and **140** are provided on slides **141** which have different lengths corresponding to the spacing of the delivery regions from the magazines **137** and **138**.

The cells **11** and **13**, and **12** and **14** move parallel up to stations V and VI (see FIGS. 9 and 10). Further transport chains **144** having transport hooks **142** are provided here, which introduce the slide portion of the packet, together with the aluminium foil wrapped cigarette block present therein, into the allocated shell by means of tapered guides **145** and moreover convey the finished packet onto a delivery plate **146** of the machine.

The chains **144** for station IV, run over chain wheels **147** from a frame **166** up to a frame **163**. These chains are guided over a supplementary chain wheel **150** in order that the transport hooks **142** can follow the inclined guide path **172**. Thus the packets produced in the lower path are brought up to the level of the delivery plate **146**. The chains for the station V run over chain wheels **147** from a frame **165** up to a frame **162**. The drive of the chain wheels is effected in common through spur wheels on a shaft **178** and spur wheels meshing therewith

on a shaft **179** and through a common intermediate spur wheel **149** on a shaft **180**. A chain wheel **174** is provided on the shaft **179**, and is driven by a chain **173** from a further chain wheel **181** on the control shaft **19**. The drive of the chains **144** is effected continuously. The frames **162**, **163**, **164**, **165** and **166** are arranged in pairs and are mutually braced by means of traverses **170**, **171**, **167**, **168** and **169**. The transport hooks **142** have rollers **177** on lateral extensions, the rollers being supported on guides **160** and **161** and being linked with central studs **182** on the chains **144**. The transport hooks **142** remain always in their suspended position.

The packet slide parts in the cells **11** and **12**, containing the cigarette blocks, are further handled on the way from station III to station VI, or from station IV to station V respectively so that the still open introduction side is raised up by stationary blades **184** and **185** (FIG. 11) and the upper carton tip is folded over inwardly. In this manner, the slide part is completely introduced into the packet shell by means of the transport hooks **142** and the tapered guide **145**.

Since the paths for the cells **12** and **14** lie higher than the paths for the cells **11** and **13**, the supply of the aluminium-wrapped cigarette blocks to station IV by movement above the cells **11** and **13** on the way to the cells **12** is possible. Furthermore, the supply of the shells from station III from magazine **139** to the cells **13** by movement below the cells **12** is possible. Furthermore, the beginning of the paths of stations I and II are so displaced relatively to each other that at station I the supply of the slide carton part from magazine **63** to the cells **11** is possible. The same is the case for the ends of the paths formed by the cells **13** and **14** so that the delivery of the finished packets from station VI from the path for the cells **13** is readily possible without hindrance.

The difference in height of the paths for the cells **11** and **13** relative to the paths for the cells **12** and **14** is a basic feature of the invention. The way in which the paths are fed may vary, depending at which side of the machine the magazines **63**, **64** and **137**, **138** are to be arranged.

An alternative arrangement is illustrated in FIGS. 13, 14 and 15. Whereas in the first embodiment the shell magazines **137** and **138**, the slide magazines **63** and **64**, and the cigarette hopper **10** are arranged in front of the respective feed paths, in the alternative arrangement of FIGS. 13, 14 and 15, the shell magazines, the slide magazines and the cigarette hoppers are arranged on one side of the machine, an outlet passage **191** for finished packets being provided at the other side. The finished packets from both paths are brought together in the passage **191** and for convenience in final wrapping are disposed vertically one behind the other, this being effected by fixed blades **192**.

The path for the cells **13** runs from station III below that of the slide supply device. The paths for the cells **11** and **13** run to station V below the path along which the cigarette blocks are fed. It is thus possible to work in two paths, using a common cigarette supply hopper for both paths, the supply of the packet blanks being effected in common from the same side or selectively from one or the other side of the machine.

The packet which is produced by the machine of FIGS. 1 to 12 or 13 to 15, is shown in FIGS. 16 and 17, FIG. 16 showing the slide part **194** and FIG. 17 showing the shell part **195**.

An analogous problem arises in connection with cap box packing machines for cigarettes. These packing machines also operate according to the intersecting feed path system, and the production of double pathed cap box packing machines is subject to the same difficulties as for slide and shell transverse packing machines. The system of differently elevated packing paths according to the invention, can also be used with the same result in this case.

In FIGS. 18, 19 and 20, such a double pathed intersecting feed cap box packing machine for cigarettes is illustrated, a cap box and its contents being shown in FIGS. 21 and 22 respectively.

The machine has magazine chutes **201** and **202** in which the empty boxes are inserted and from which they are removed by carriers **203** of transverse transport chains **204** and **205** and introduced into the packing path.

On the way from station I to station II and from station IV to station V respectively, the lids of the cap boxes are opened, so that at stations II and V they are disposed as illustrated in FIG. 21. On the way from stations VII to station II and stations VIII to station V, the inner part is produced, as is shown in FIG. 22. Upper plungers **206** and **207** then press the inner part of FIG. 20 from above into the box of FIG. 21, so that the metal foil part **209** and **210** extends upwardly in an L-shape. At one of the next stations, the foil part **208** is lifted up by fixed rails so that the foil part **210** can be pushed below it, this being effected by known folding means not illustrated. Thereafter, at further stations the foil part **208** is released, and the lid **211** of the cap box is closed, whereupon the finished, filled, boxes are stacked in chutes **212** and **213** at stations III and VI or are removed in another known manner.

The above-outlined construction and operation is possible because of the difference in height of the packing paths provided by the conveyor chains **204** and **205** and due to the fact that the paths II to III and stations VIII to V are so disposed that one path can be guided above the other.

The common cigarette supply hopper for both paths is indicated by reference numeral **217**, the supply chutes **216** thereof being of different heights corresponding to the different feed path heights. Continuously revolving chains **214**, provided with transverse bars **215** remove in each case the lowermost cigarette layer from the supply chutes **216** and convey this onto guide plates **263**. At the end of these guide plates, the cigarettes fall in layers onto the lower lying guide plates **229**. Pushing dogs **219** on the permanently revolving chains **264** then push the thus formed cigarette block **266** after the required number of layers has been collected, onto a metal foil section **265**. The metal foil section **265** is taken from a roll **220**, winding rollers **221** removing the required length and supply rollers **226** periodically supplying this amount. During a period of rest of the supply rollers **226**, cutters **227** and **228** cut the foil section. At this instant, a cigarette block **266** arrives in front of the cut section and is pushed thereagainst so that the foil section is formed in a U-shaped manner about the cigarette block.

The cigarette block **266** which is now enveloped in U-shaped manner, is introduced into a pocket **233** which is movable to and fro and a rod **234**, when the pocket is in its lowermost position, whereupon a pushing dog **219** tips rearwardly in known manner. The pocket **233** moves into its uppermost position and, for the front path V*o*, a pushing member **231** provided on an arm **232** pushes the cigarette block out of the pocket **233** in the position II above the path V*o*, where the prepared cap box of FIG. 19 lies. The plunger **206** then presses the cigarette block of FIG. 22 into the opened box.

For the rear path H*i*, a transport chain **235** serves for feeding the cigarette block from the pocket **233** above the opened box in position V above the path H*i*, since transport hooks **236** provided on the chain **235**, and which are stabilized by means of rollers **237** and guided thereby, are brought into such a position in which the cigarette block of FIG. 22 is pressed by the plunger **207** into the open box of FIG. 21.

The further operation of the machine is similar to that of the machine of FIGS. 1 to 12.

The drive of the intermittently advanced chains **243** is effected by an indexing cam **251**, which is provided on a common control shaft **252** and which drives an indexing plate **250** in such manner that for each control shaft revolution the plate **250** is rotated through a fixed angle of for example 60°. Spur wheels **248** and **246** and **247**, transfer the rotary movement onto the chain wheels **245** over which the chains **243** are entrained, the chains **243** being also guided over chain wheels **244**.

The drive of the main control shaft **252** is effected by a motor **258** which is provided on a plate **259** in the machine frame **253**. By means of a V-belt pulley **257** and a V-belt pulley **256** is driven from the motor shaft. A pinion **255** is provided on the same shaft as the pulley **256**, and meshes with a spur wheel **268** on a control shaft **254**. This control shaft **254** drives the control shaft **252** through a pair of bevel wheels **267**.

I claim:

1. A packing machine for packing articles in packets, comprising means defining a first feed path for articles to be packed, means defining a second feed path for articles to be packed, said first article-feed path being at a higher level than said second article-feed path, means defining a first transverse feed path, means defining a second transverse feed path, said first article-feed path being intersected by said first transverse feed path and said second article-feed path being intersected by said second transverse feed path, one of said transverse feed paths crossing one of said article-feed paths without intersecting the same, means for feeding articles along said first and second article-feed paths, and means for feeding packing material along said first and second transverse feed paths.

2. A packing machine as defined in claim **1**, and further comprising means defining a third transverse feed path, said first article-feed path being intersected by said third transverse feed path, and means defining a fourth transverse feed path, said second article-feed path being intersected by said fourth transverse feed path, one of said third and fourth feed paths crossing one of said article-feed paths without intersecting the same, and means for feeding one kind of packing material along said third and fourth transverse feed paths, another kind of packing material being fed along said first and second transverse feed paths.

3. A packing machine as defined in claim **2**, and further comprising means for engaging articles which are fed along said first article-feed path by packing material fed along said first and third transverse feed paths, and means for engaging articles, which are fed along said second article-feed path, by packing material fed along said second and fourth transverse feed paths, whereby to pack the articles in packets.

4. A packing machine as defined in claim **3**, and further comprising means defining a transverse removal path common to said first and second article feed paths, and means for displacing packed articles laterally from said first and second article feed paths into said removal path.

5. A packing machine as defined in claim **4**, wherein said removal path has an inclined part adapted to the difference in level of said first and second article-feed paths.

6. A packing machine as defined in claim **3**, and comprising extensions of said transverse feed paths beyond said article-feed paths, and means for displacing packed articles laterally from said first and second article-feed paths into said extensions.

7. A packing machine as defined in claim **1**, and comprising means for supplying articles to said first and second article-feed paths, said supplying means being arranged in line with said first and second article-feed paths, and magazines for supplying packing material to said first and second transverse feed paths, said magazines being arranged in line with said first and second transverse feed paths.

8. A packing machine as defined in claim **1**, and comprising means for supplying articles to said first and

second article-feed paths, said supplying means being arranged laterally at one side of said first and second article-feed paths, and magazines for supplying packing material to said first and second transverse feed paths, said magazines being laterally arranged at one side of said first and second transverse feed paths.

9. A packing machine as defined in claim 1 for packing articles into box-like packing material and comprising means for opening lids of empty boxes, means for inserting an inner part provided with articles into said boxes, and means for closing the lids after the articles have been introduced into said boxes.

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